



# OPERATION & SERVICE MANUAL

**Model: 03A5829C0000**  
**DeHavilland Dash-8 400**  
**Tailstand with Alarm**



01/2014 – Rev. 01

REVISION  
01

DATE  
01/2014

TEXT AFFECTED  
Original release

## TABLE OF CONTENTS

	<u>PAGE</u>
<b>1.0 DESCRIPTION.....</b>	<b>1</b>
<b>2.0 USAGE.....</b>	<b>1</b>
<b>3.0 ASSEMBLY INSTRUCTIONS.....</b>	<b>1</b>
3.1 GENERAL INFORMATION.....	1
3.2 PRE-USE CHECKS.....	1
3.3 ASSEMBLY STEPS.....	1
<b>4.0 SAFETY INFORMATION.....</b>	<b>1</b>
4.1 ALARM AND WARNING SYSTEMS.....	1
4.2 WARNING AND DANGER SIGNS.....	1
4.3 COMPONENT SAFETY FEATURES.....	1
4.4 FUNCTIONAL SAFETY FEATURES.....	1
4.5 FEATURES FOR OPERATOR SAFETY.....	1
4.6 ENVIRONMENTAL SAFETY FEATURES.....	1
4.7 PROTECTION SYSTEMS.....	1
4.8 CLOSED CIRCUITS.....	1
4.9 INTERLOCKING.....	2
4.10 NECESSARY PERSONAL PROTECTIVE EQUIPMENT.....	2
4.11 SAFETY GUIDELINES.....	2
4.12 CONDITIONS FOR SAFE USE.....	2
4.13 OPERATOR QUALIFICATIONS.....	2
4.14 ADDITIONAL SAFETY MEASURES.....	2
<b>5.0 PACKAGING AND STORAGE.....</b>	<b>3</b>
5.1 PACKAGING REQUIREMENTS.....	3
5.2 HANDLING.....	3
5.3 STRAPPING.....	3
5.4 PACKAGING PROTECTION.....	3
5.5 LABELING OF PACKAGING.....	3
5.6 STORAGE COMPATIBILITY.....	3
5.7 STORAGE ENVIRONMENT.....	3
5.8 STORAGE SPACE AND HANDLING FACILITIES.....	3
<b>6.0 TRANSPORTATION.....</b>	<b>3</b>
<b>7.0 ASSEMBLY.....</b>	<b>4</b>
7.1 GENERAL INSTRUCTIONS.....	4
7.2 PRE-USE CHECKS.....	4
7.3 PERSONNEL REQUIREMENTS.....	4
7.4 ASSEMBLY STEPS.....	4
7.5 INSPECTION AND TEST PROCEDURES.....	4
<b>8.0 INSTALLATION.....</b>	<b>4</b>
<b>9.0 OPERATION.....</b>	<b>5</b>
9.1 OPERATING PARAMETERS.....	5
9.2 NUMERICAL VALUES.....	5
9.3 OPERATOR CONTROLS.....	5
9.4 OPERATING INSTRUCTIONS.....	5
9.4.1 Rules For Operating.....	5
9.4.2 Operation.....	5
9.4.3 Alarm Test.....	5
9.4.4 Battery Test.....	5
9.4.5 Low Battery Warning.....	6
9.4.6 Alarm Load Test.....	6
9.4.7 Tailstand Instructions.....	6
<b>10.0 TRAINING.....</b>	<b>7</b>
<b>11.0 MAINTENANCE.....</b>	<b>7</b>
11.1 GENERAL.....	7
11.2 MAINTENANCE SCHEDULE.....	7
11.3 CLEANING ALARM.....	7
<b>12.0 TROUBLESHOOTING.....</b>	<b>7</b>
<b>13.0 PROVISION OF SPARES.....</b>	<b>7</b>
13.1 SOURCE OF SPARE PARTS.....	7
13.2 RECOMMENDED SPARE PARTS LISTS.....	7
<b>14.0 GUARANTEES/LIMITATION OF LIABILITY.....</b>	<b>8</b>

This product can not be modified without the written approval of Tronair, Inc. Any modifications done without written approval voids all warranties and releases Tronair, Inc., its suppliers, distributors, employees, or financial institutions from any liability from consequences that may occur. Only Tronair OEM replacement parts shall be used.

## 1.0 DESCRIPTION

This Tronair Tailstand incorporates the following quality features:

- Steel construction
- Easily maneuverable
- Vertically adjustable to within plus or minus one-quarter inch ( $\frac{1}{4}$ " )
- May be disassembled for easy replacement of parts or shipment

## 2.0 USAGE

The purpose of this Tailstand is to support aircraft fuselage during maintenance whose maximum load does not exceed the rated capacity or the tailstand.

## 3.0 ASSEMBLY INSTRUCTIONS

### 3.1 GENERAL INFORMATION

This product should be assembled and/or repaired using good workmanship practices and proper tools. Bolts and elastic stopnuts should be tightened to a torque not to exceed industry standards for Grade '5' bolts. The 3/8-24 bolts should be tightened to 35 ft-lbs and  $\frac{1}{2}$ -20 bolts tightened to 85 ft-lbs.

All replacement parts must be the same as or equal to the original parts supplied.

### 3.2 PRE-USE CHECKS

Refer to the Tailstand illustrated parts breakdown to identify and assure all parts are present.

- Generally, check over unit to assure the tightness of all nuts, bolts and screws with extension collapsed.
- Assure safety chain is attached to all three legs with no more than one-half inch ( $\frac{1}{2}$ " ) slack.

### 3.3 ASSEMBLY STEPS

Fasten cradle assembly to extension tube with one (1)  $\frac{1}{2}$ -20 x 2  $\frac{1}{4}$ " long hex head bolt,  $\frac{1}{2}$ " flatwashers, and  $\frac{1}{2}$ -20 elastic stopnuts.



### CAUTION

**Safety chain must be installed to legs to prevent tailstand collapse and prevent aircraft damage and operator injury**

## 4.0 SAFETY INFORMATION

### 4.1 ALARM AND WARNING SYSTEMS

The tailstand has an alarm system that alerts the operator that a force of 100 to 150 pounds (45.36 to 68.04 kg) is being applied to the top of the cradle. The unit attached to the tailstand sounds a loud 85 dB pulsating alarm until the force is reduced.

### 4.2 WARNING AND DANGER SIGNS

None

### 4.3 COMPONENT SAFETY FEATURES

**Extension Pin** provides a visual check that the pin is fully inserted

### 4.4 FUNCTIONAL SAFETY FEATURES

None

### 4.5 FEATURES FOR OPERATOR SAFETY

None

### 4.6 ENVIRONMENTAL SAFETY FEATURES

Tailstand is non-polluting.

### 4.7 PROTECTION SYSTEMS

None

### 4.8 CLOSED CIRCUITS

Reference Figure 1

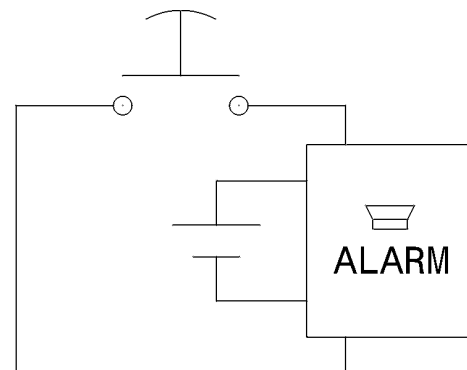


Figure 1 - Closed Circuits

**4.0 SAFETY INFORMATION** *(continued)***4.9 INTERLOCKING**

None

**4.10 NECESSARY PERSONAL PROTECTIVE EQUIPMENT****CAUTION!****Always wear safety glasses.****4.11 SAFETY GUIDELINES****CAUTION!**

1. **DO NOT** place hands on top of tailstand near base tube receiver while lowering tailstand extension. Pinch point exists between top of tube and bracket on extension.
2. **DO NOT** place feet under tailstand near base tube receiver while lowering tailstand extension. Pinch point exists between ground and extension tube.
3. **ALWAYS** install tailstand **AFTER** aircraft has been jacked to working position.
4. Never put hands between aircraft and tailstand cradle.
5. **ALWAYS** be sure tailstand extension pin is fully locked and inserted through the tube.
6. **NEVER** load tailstand by lowering jacks. **ALWAYS** lower and remove tailstand **BEFORE** lowering aircraft.
7. **DO NOT** place hands near the die springs on the load alarm while the stabilization stand is in use. Pinch point exists on the die springs and between the top plate and the base of the load alarm.
8. **DO NOT** allow prolonged exposure to the sounding alarm. The alarm sound may cause permanent hearing loss.
9. **DO NOT** place objects in the path of the alarm's horn opening that may limit the audible range and reduce the effectiveness of the alarm.
10. **DO NOT** turn setscrew located under the plunger switch. The distance between the setscrew and plunger is pre-set by the factory.

**4.12 CONDITIONS FOR SAFE USE**

- Use in a clean dry environment, on a hard level surface.
- Operate between +4° C and 38° C/+40° F and 100° F.

**4.13 OPERATOR QUALIFICATIONS**

This tailstand is intended to be used by a skilled and trained aircraft technician. The operator must be familiar with the jacking procedures for the aircraft to be raised, and the operation of the tailstand.

**Installation/Maintenance/Dismantling Qualifications:** This tailstand is to be installed, maintained, and dismantled by qualified technicians familiar with aircraft maintenance systems.

**4.14 ADDITIONAL SAFETY MEASURES**

This tailstand must be used in accordance with this Technical manual, and in accordance with the aircraft manufacturer's jacking and stabilizing procedures.

## **5.0 PACKAGING AND STORAGE**

### **5.1 PACKAGING REQUIREMENTS**

Tailstand is to be packaged as required to prevent damage to legs or cradle equipment during shipment.

### **5.2 HANDLING**

Tailstand can be rolled by hand on its casters.

### **5.3 STRAPPING**

Tailstand can be strapped down by suitable means to prevent unwanted movement during shipment.

### **5.4 PACKAGING PROTECTION**

No special packaging material for cushioning or suspension is required.

### **5.5 LABELING OF PACKAGING**

Packaging should be labeled **DO NOT DROP**.

### **5.6 STORAGE COMPATIBILITY**

No special considerations.

### **5.7 STORAGE ENVIRONMENT**

- Store tailstand between +4° C and +38° C/+40° F and 100° F.
- Always store tailstand with extension all the way down.
- Tailstand must be stored in a clean and dry environment.

### **5.8 STORAGE SPACE AND HANDLING FACILITIES:**

- Minimum Closed Height: 81.5 in (207 cm)
- Maximum Height Obtainable: 106 in (269.24 cm)
- Weight: 110 lbs (50 kg)

## **6.0 TRANSPORTATION**

Lifting can be accomplished by crane and strap through top of tripod, or by fork truck under lower tripod support. Approximate weight 110 lbs (50 kg)

## 7.0 ASSEMBLY

### 7.1 GENERAL INSTRUCTIONS

1. This product should be assembled and/or repaired using good workmanship practices and proper tools. Bolts and elastic stopnuts should be tightened to a torque not to exceed industry standards for Grade 5 bolts.
2. All replacement parts must be the same as or better than the original parts supplied.
3. No modifications are allowed as they may adversely affect the tailstand's safety performance.

### 7.2 PRE-USE CHECKS

1. Refer to the Illustrated Parts List to identify and ensure that all parts are present.
2. Generally, check over unit and ensure the tightness of all nuts and bolts.

### 7.3 PERSONNEL REQUIREMENTS

This tailstand is to be assembled by qualified technicians familiar with aircraft maintenance systems.

### 7.4 ASSEMBLY STEPS

1. Slide alarm from holder and install a 9 volt battery in the alarm by removing two screws located in the back of the alarm.  
**Reference Figure 2.**

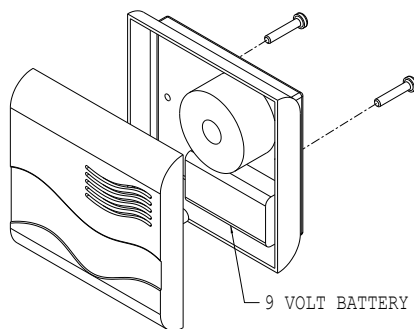


FIGURE 2

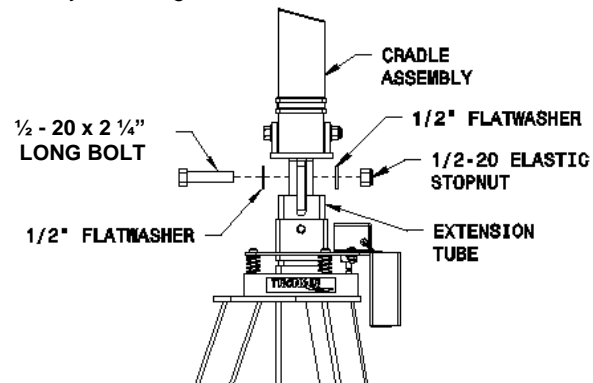


FIGURE 3 (for reference)

2. Fasten cradle assembly to extension tube with one (1) 1/2 - 20 x 2 1/4 inch hex head bolt, 1/2 inch flatwasher, and 1/2 - 20 elastic stopnut. **reference Figure 3.**

### 7.5 INSPECTION AND TEST PROCEDURES

1. It is recommended every 90 days to visually inspect all welds, cradle, extension pin, and extension pin holes in the base and extension tubing for defects. If defects are found, remove tailstand from active service until repairs are made.
2. Test alarm by slowly applying a force evenly distributed across the top of the cradle. The cradle head will lower and engage a limit switch. A loud pulsating alarm will then sound when the force reaches between 100 to 150 pounds (45.36 to 68.04 kg). If alarm does not sound, refer to the Troubleshooting section. **Reference Figure 4.**

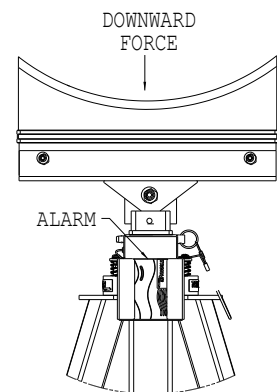


FIGURE 4 (for reference)

## 8.0 INSTALLATION

None

## 9.0 OPERATION

### 9.1 OPERATING PARAMETERS

1. The user shall work in accordance with the Operator and/or Technical Manuals.
2. The employer of the operator shall provide all necessary training.
3. Operate between +4° C and 38° C/+40° F and 100° F.

### 9.2 NUMERICAL VALUES

- Minimum Closed Height: 81.5 in (207 cm)
- Maximum Height Obtainable: 106 in (269.24 cm)
- Weight: 110 lbs (50 kg)
- Alarm (Battery Powered): 9 vdc
- Alarm Horn: 85 dB

### 9.3 OPERATOR CONTROLS

None

### 9.4 OPERATING INSTRUCTIONS

The user should be familiar with the following statements prior to using the tailstand:



#### CAUTION!

1. **DO NOT** place hands on top of tailstand near base tube receiver while lowering tailstand extension. Pinch point exists between top of tube and bracket on extension.
2. **DO NOT** place feet under tailstand near base tube receiver while lowering tailstand extension. Pinch point exists between ground and extension tube.
3. **ALWAYS** install tailstand **AFTER** aircraft has been jacked to working position.
4. **Never** put hands between aircraft and tailstand cradle.
5. **ALWAYS** be sure tailstand extension pin is fully locked and inserted through the tube.
6. **NEVER** load tailstand by lowering jacks. **ALWAYS** lower and remove tailstand **BEFORE** lowering aircraft.
7. **DO NOT** place hands near the die springs on the load alarm while the stabilization stand is in use. Pinch point exists on the die springs and between the top plate and the base of the load alarm.
8. **DO NOT** allow prolonged exposure to the sounding alarm. The alarm sound may cause permanent hearing loss.
9. **DO NOT** place objects in the path of the alarm's horn opening that may limit the audible range and reduce the effectiveness of the alarm.
10. **DO NOT** turn setscrew located under the plunger switch. The distance between the setscrew and plunger is pre-set by the factory.

#### 9.4.1 Rules For Operating

- a. The user shall work in accordance with this manual.
- b. The employer of the operator shall provide all necessary training.
- c. Operate between +4° C and 38° C/+40° F and 100° F.

#### 9.4.2 Operation

When a force of 100 to 150 pounds (45.36 to 68.04 kg) is applied to the top of the cradle, the cradle head will lower and depress the plunger switch. This will activate the alarm which sounds a loud 85 dB pulsating alarm until the force is reduced.

#### 9.4.3 Alarm Test

Depress plunger switch and hold for a minimum of two (2) seconds. This will sound the alarm if the electronic circuitry, horn and battery are operating correctly. Refer to Trouble Shooting section of this manual if test fails.

#### 9.4.4 Battery Test

Depress test button and hold for a minimum of two (2) seconds. This will sound the alarm if the battery is installed correctly.

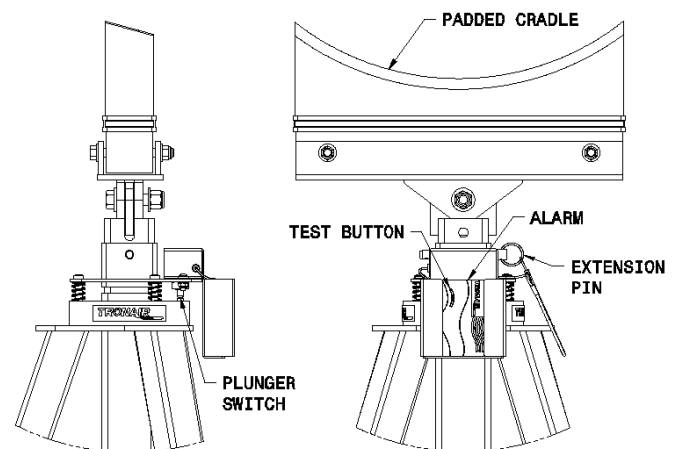


FIGURE 5 (for reference)



#### CAUTION!

**Depressing the Test Button on the alarm does not provide a check for the entire electronic circuit!**



## 9.4 OPERATING INSTRUCTIONS *(continued)*

### 9.4.5 Low Battery Warning

The alarm will “chirp” every 20 to 30 seconds to indicate the battery is low and needs changing.

### 9.4.6 Alarm Load Test

Place a force between 100 to 150 lbs (45.36 to 68.04 kg) to the top of the cradle. This will activate the alarm. Refer to Trouble Shooting section of this manual if test fails.

### 9.4.7 Tailstand Instructions

#### To Raise Aircraft:

- Jack aircraft to desired height.
- Place tailstand on a hard, level surface.
- Position tailstand at aircraft manufacturer's recommended location.
- Raise tailstand extension padded cradle as close to aircraft as possible.
- Install tailstand extension pin.

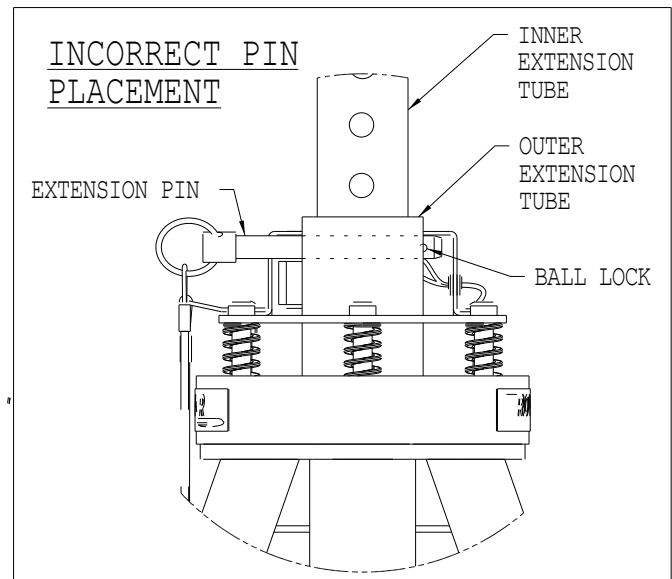
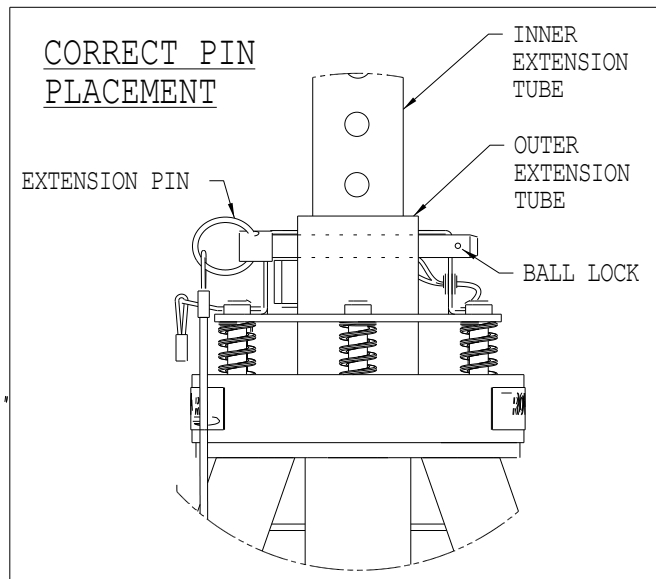


#### WARNING!

The locking pin **MUST** be placed fully through the inner and outer extension tube.

The locking pin washer and ball lock **MUST** be placed outside the outer extension tube.

- Do not place extra locking pins in any other hole on the inner extension tube.
- Under no conditions should the locking pin's ball lock be inside the inner and outer extension tube.
- Never use a locking pin that has been damaged.
- Never use an inner and outer extension tube that has been damaged or deformed.
- Failure to comply could result in premature failure below certified weight and could cause serious injury including death.



- Make necessary adjustments to reduce force on tailstand when the alarm sounds.

#### To Lower Aircraft:

- Clear all personnel from inside and under aircraft.
- Make necessary adjustments to reduce force on tailstand when the alarm sounds.
- Remove tailstand extension pin and lower extension.
- Relocate tailstand away from aircraft and secure.
- Lower aircraft to the ground.



#### CAUTION!

- DO NOT** place hands on top of tailstand near base tube receiver while lowering tailstand extension. Pinch point exists between top of tube and bracket on extension.
- DO NOT** place feet under tailstand near base tube receiver while lowering tailstand extension. Pinch point exists between ground and extension tube.
- ALWAYS** wear safety glasses.

**10.0 TRAINING**

Training of operating personnel is the responsibility of the employer. This tailstand must be used in accordance with aircraft manufacturer's instructions.

**11.0 MAINTENANCE****11.1 GENERAL**

- All maintenance and/or repair work should be done using good workmanship practices and proper tools.
- Tailstand shall be maintained and repaired in accordance with the manufacturer's instructions. Such maintenance and repair shall be carried out by qualified persons.
- No modifications shall be carried out as they may adversely affect the compliance of the tailstand with draft standard prEN 1494:1994.

**11.2 MAINTENANCE SCHEDULE**

Cleaning: Annually or as Needed

**NOTE: Wipe with soft cloth only, do not pressure wash or spray water directly at cradle.**

**11.3 CLEANING ALARM**

Remove alarm from mounting bracket. The openings around the alarm perimeter may be cleared of debris by using compressed air or a vacuum cleaner hose to blow/suction openings. The outside surface of the alarm unit may be wiped with a damp cloth.

**12.0 TROUBLESHOOTING**

Possible Cause	Solution
<b>Alarm Will Not Sound</b>	
Load was on the cradle for a short period of time	Limit switch has to be engaged for a minimum of two (2) seconds
Defective alarm	Replace alarm
Battery power depleted	Replace battery
Defective limit switch	Replace limit switch
Broken wire connection	Check wire connection between limit switch and alarm
Cradle head did not lower far enough to contact limit switch	Test per Section 7.5.2
<b>Alarm "Chirps"</b>	
Indicates low battery	Replace battery (Alarm will "chirp" every 20 to 30 seconds for a minimum of 7 days until battery is changed).
<b>Alarm Produces An Erratic Or Low Sound:</b>	
Defective alarm	Replace alarm

**13.0 PROVISION OF SPARES****13.1 SOURCE OF SPARE PARTS**

Spare parts may be obtained from the manufacturer:

**TRONAIR, Inc.**

1 Air Cargo Pkwy East  
Swanton, Ohio 43558 USA

Telephone: (419) 866-6301 or 800-426-6301

Fax: (419) 867-0634

E-mail: sales@tronair.com

Website: www.tronair.com

**13.2 RECOMMENDED SPARE PARTS LISTS**

Reference the following page(s) for Replacement Parts and Kits available.

#### 14.0 GUARANTEES/LIMITATION OF LIABILITY

Tronair products are warranted to be free of manufacturing or material defects for a period of one year after shipment to the original customer. This is solely limited to the repair or replacement of defective components. This warranty does not cover the following items:

- a) Parts required for normal maintenance
- b) Parts covered by a component manufacturers warranty
- c) Replacement parts have a 90-day warranty from date of shipment

If you have a problem that may require service, contact Tronair immediately. Do not attempt to repair or disassemble a product without first contacting Tronair, any action may affect warranty coverage. When you contact Tronair be prepared to provide the following information:

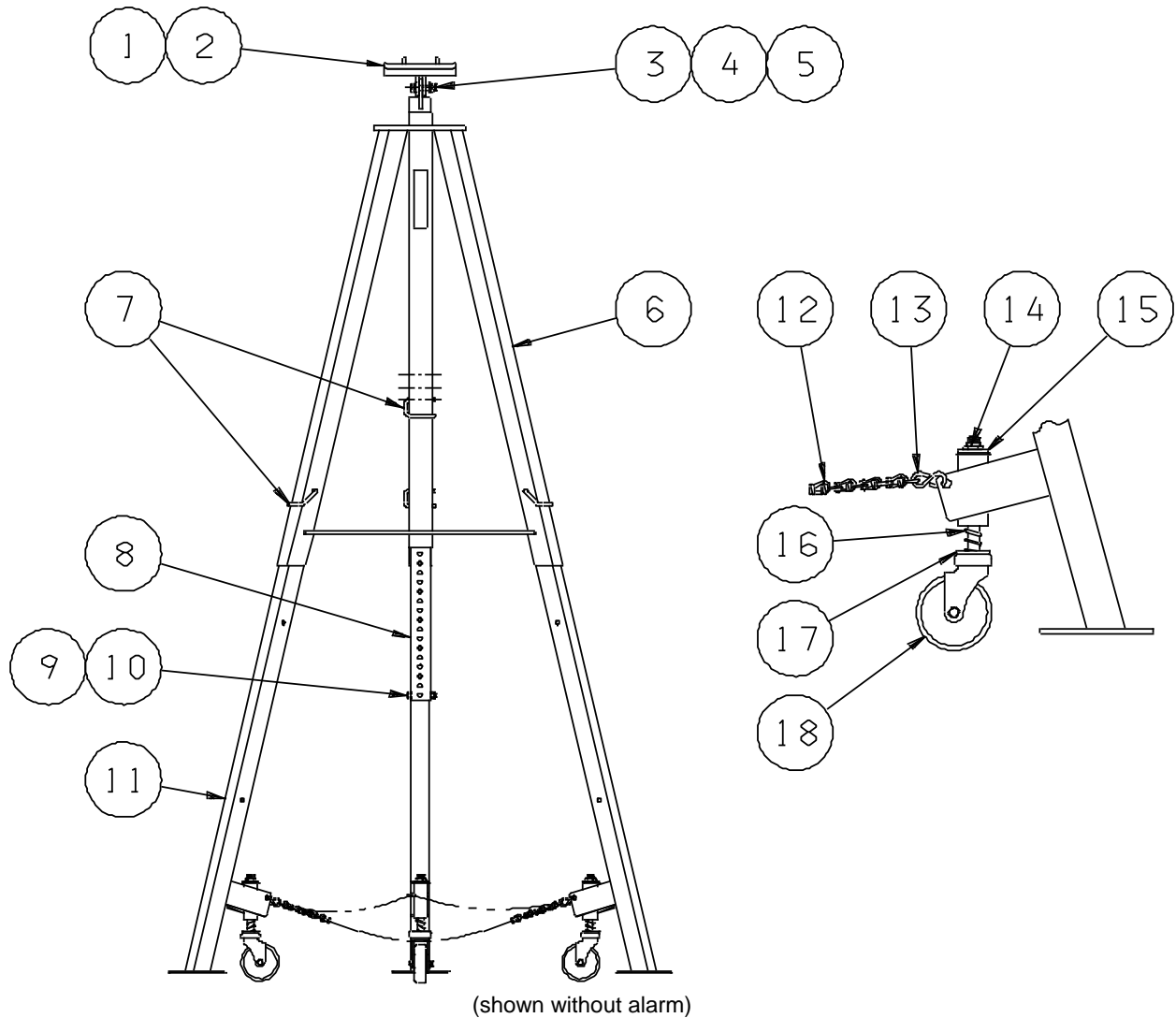
- a) Product Model Number
- b) Product Serial Number
- c) Description of the problem

If warranty coverage is approved, either replacement parts will be sent or the product will have to be returned to Tronair for repairs. If the product is to be returned, a Return Material Authorization (RMA) number will be issued for reference purposes on any shipping documents. Failure to obtain a RMA in advance of returning an item will result in a service fee. A decision on the extent of warranty coverage on returned products is reserved pending inspection at Tronair. Any shipments to Tronair must be shipped freight prepaid. Freight costs on shipments to customers will be paid by Tronair on any warranty claims only. Any unauthorized modification of the Tronair products or use of the Tronair products in violation of cautions and warnings in any manual (including updates) or safety bulletins published or delivered by Tronair will immediately void any warranty, express or implied.

The obligations of Tronair expressly stated herein are in lieu of all other warranties or conditions expressed or implied. **Any unauthorized modification of the Tronair products or use of the Tronair products in violations of cautions and warnings in any manual (including updates) or safety bulletins published or delivered by Tronair will immediately void any warranty, express or implied and Tronair disclaims any and all liability for injury (WITHOUT LIMITATION and including DEATH), loss or damage arising from or relating to such misuse.**

### Parts List

When ordering replacement parts/kits, please specify model, serial number and color of your unit.



Item	Part Number	Description	Qty
1	Z-4455-01	Assembly, Cradle (Includes Item 2)	1
2	J-3016	Pad, Cradle	1
3	G-1100-109522	Bolt, Hex Head, Grade 5, 1/2-20 x 2-1/4" long	1
4	G-1250-1090N	Flatwasher, 1/2 Narrow	2
5	G-1202-1095	Stopnut, 1/2-20 Elastic	1
6	Z-4458-01	Weldment, Tailstand	1
7	G-1311-02	Pin, Lock	4
9	G-1100-107526	Bolt, Hex Head, Grade 5, 3/8-24 x 2-3/4" long	1
10	G-1202-1075	Stopnut, 3/8-24 Elastic	1
11	Z-4460-01	Weldment, Leg	3
12	H-1024-01*120.0	Chain, Double Loop 2/0 x 120" long	1
13	H-1518-03	Hook	3
16	H-1128-02	Spring	3

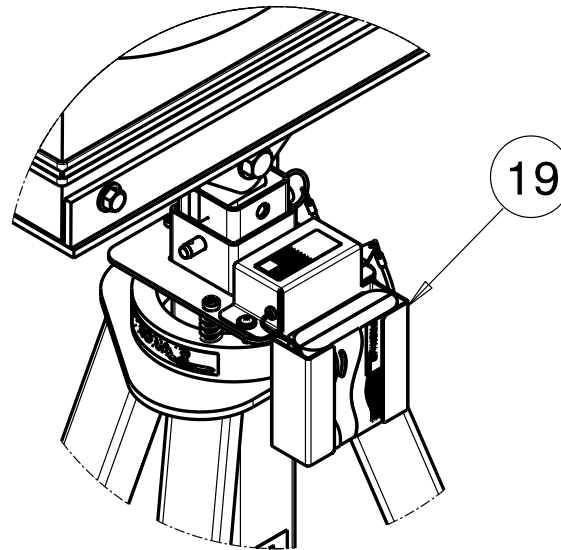
## Parts List

When ordering replacement parts/kits, please specify model, serial number and color of your unit.

Item	Part Number	Description	Qty
	<b>K-2800</b>	<b>Kit, Caster Replacement; consists of:</b>	
14	G-1203-1105	Jamnut, 5/8-18 Elastic	1
15	G-1550-1100N	Flatwasher, 5/8 Narrow	1
17	G-1250-1110W	Flatwasher, 3/4 Wide	1
18	U-1053	Caster, Stem	1
	<b>K-3190</b>	<b>Kit, Center Extension Replacement; consists of:</b>	
3	G-1100-109522	Bolt, Hex Head, Grade 5, 1/2-20 x 2-1/4" long	1
4	G-1250-1090N	Flatwasher, 1/2 Narrow	2
5	G-1202-1095	Stopnut, 1/2-20 Elastic	1
8	Z-4456-01	Weldment, Center Extension	1
9	G-1100-107526	Bolt, Hex Head, Grade 5, 3/8-24 x 2-3/4" long	1
10	G-1202-1075	Stopnut, 3/8-24 Elastic	1
	<b>K-3191</b>	<b>Kit, Center Weldment Replacement; consists of:</b>	
6	Z-4458-01	Weldment, Tailstand (Includes Labels)	1
	<b>K-4382</b>	<b>Kit, Assembly Cradle Replacement; consists of:</b>	
1	Z-4455-01	Assembly, Cradle (Includes Item 2)	1
2	J-3016	Pad, Cradle	1
3	G-1100-109522	Bolt, Hex Head, Grade 5, 1/2-20 x 2-1/4" long	1
4	G-1250-1090N	Flatwasher, 1/2 Narrow	2
5	G-1202-1095	Stopnut, 1/2-20 Elastic	1

### Parts List

When ordering replacement parts/kits, please specify model, serial number and color of your unit.



Item	Part Number	Description	Qty
19	K-3864	Kit, Alarm Replacement	1



#### WARNING!

- Use only alkaline type batteries.
- Use of different battery types may have a detrimental effect on the alarm.



## DECLARATION of CONFORMITY

The design, development and manufacture is in accordance with European Community guidelines

Tailstand with Alarm  
03A5829C0000

Relevant provisions complied with by the machinery:  
2006/42/EC

Relevant standards complied with by the machinery:  
EN ISO 12100-1

Identification of person empowered to sign on behalf of the Manufacturer:

A handwritten signature in cursive script that reads "Patrick Finch". The signature is written in dark ink and is positioned above a horizontal line.

Quality Assurance Representative